REMARKS

The application has been amended to place it in condition for allowance at the time of the next Official Action.

Claims 1, 2, 4-12, 14, 16, 18, 19 and 21 are pending in the application.

Claims 1, 2, 4, 5, 7, 8, 10, 12, 14, 16 and 18 were rejected under 35 USC 102(b) as being anticipated by EMMONS 1,006,540. That rejection is respectfully traversed.

Claim 1 is amended to clarify the operation of the pilot valve and recites a pilot valve located in a second container connected to receive liquid from the first container when the level of liquid in the first container rises to a first predetermined level, the pilot valve being configured to open to trigger a pressurisation/depressurisation cycle of the chamber of the first container in response to the liquid level in the second container falling below a second predetermined level, which triggers the depressurisation. Support for the amendment can be found at least in paragraphs [0039] and [0040] of the published application.

By allowing the pressure of a control gas that has passed through a small fixed orifice to fall when the valve is open, and to be restored to its maximum value when the valve is closed, two signal pressures are obtained in a pipe external to the chamber. These pressures correspond to the "chamber full" and "chamber empty" conditions. These pressures are applied to the

shuttle valve that then causes the motive gas valves to change position.

In contrast, a high water level in EMMONS causes the float of EMMONS to close valve 20, and the valve 20 is opened when the water level falls.

The operation of EMMONS as set forth on page 12, item 33 of the Official Action is that "When the water in the main chamber is discharged, the combustion products do not pass into the water delivery line, the combustion products enter the small chamber (19) when it empties, and subsequently exit from the vent pipe (22). The presence of water in the delivery pipe will not hold pressure in the chamber to allow float chamber to be maintained (sic) because the pilot valve (20) is designed so that the weight of water in 19' opens the valve 20 and then empties into the drum."

However, this position is inconsistent with the disclosure of EMMONS because the water contained in the small chamber 19' can only possibly exert an opening pressure on valve 20 corresponding to the depth of water trapped in 19' when 20' closed. This must be a matter of a few inches of water gauge, perhaps 6" or 8". The pressure of the gas in the main chamber at the time when the outlet connection 15' is exposed to the gas, is at least equal to the total height of the column of water in the delivery pipe. (This pressure is higher than that needed to overcome the springs in the cylinder 36). It has been sufficient

to hold closed valve 20 and valve 14 as the water level fell during the discharge phase, and it can only be lowered when some of the gas escapes into pipe 16. Indeed, it is respectfully submitted that there is nothing to prevent gas leaving in this way, until the gas pressure has fallen to equal that in pipe 16.

Rather, it appears that the EMMONS pump would behave in the way described below.

Referring to EMMONS Figure 1, in the "as drawn" condition, the Right hand pump has filled, chamber 1W is full with float 23' lifted and valve 20' is closed. Valve 12 is allowing the inflammable gas to pressurize pipe 9, though not to such a level as to push the water in chamber 10' into the delivery pipe. The piston in cylinder 34' changes the position of valve 12 and ignition occurs. Now, water is pushed out of chamber 10.

When the water level reaches the outlet 15' gas begins to bubble the water delivery pipe 16. At this time the pressure in 10' is still high enough to hold closed valves 14' and 20'. Chamber 10 has been filling and is now at least partly full of water.

The back pressure exerted on outlet 15' by the water in pipe 16 is somewhat lowered by the presence of gas bubbles, and equally the pressure in chamber 10' can continue to fall. However, if this back pressure should fall as low as that corresponding to the water level in the pond or tank being

emptied, water could flow through the Left Hand pump and its outlet valve 17 into pipe 16, it appears that the minimum pressure at the outlet side of valves 17 and 17' is the same as if pipe 16 were flooded to the same level as in the pond or tank.

Thus the gas in chamber 10' cannot escape (into delivery pipe 16) if its pressure should tend to fall below this minimum value. This pressure is enough, especially when assisted by the weight of valve 14' and its pushrod and the buoyancy of float 23, to hold valve 14 closed.

In the meantime the Left Hand pump has been filling, the inflammable gas reaching it through valve 12 being vented to atmosphere through valve 20. When valve 20 closes, and pressure builds up, cylinder 34 resets valve 12. Ignition occurs and chamber 10 empties. The inflammable gas is now directed into the Right Hand pump. Assuming that it is not ignited by the residual hot gas in chamber 10, it would build up the pressure therein. After some little time the pressure would be high enough to again reset valve 12. By this time the Left Hand pump would have discharged its contents into delivery pipe 16 and would contain its residual gas at a low but positive pressure.

The EMMONS pump appears to pump out a single chamberful of water from each of its two units and than discharge exhaust gas, mixed with inflammable gas, through the delivery pipe.

In view of the above, it is apparent that valve 20 of EMMONS does not meet the recited pilot valve.

Rather, the valve 20 of EMMONS is an exhaust valve that opens when the residual pressure in chamber 10 falls below a value P low enough for water in the tank or pond being emptied to push open valve 13, lift the pushrod 26, and pull open the valve 20.

Moreover, since water remaining in pipe 16 to any height above the level in the tank or pond exerts a back pressure on valve 17 greater than P, EMMONS has not shown how valves 20 could be made to open.

In addition, if the height through which the water was to be lifted were such that water was discharged from 10; say, before the pressure therein was high enough to actuate the piston in cylinder 34, then when the water level in 10 exposed valve 17, the inflammable gas could simply bubble through pipe 16 to the open end continuously, with no cycling taking place.

In view of the above, it is apparent that EMMONS does not disclose each of the recited elements, and thus, EMMONS is not anticipatory.

Independent claim 10 is amended to include a similar feature and the analysis above regarding claim 1 is equally applicable to claim 10.

The dependent claims are believed patentable at least for depending from allowable independent claims.

Claims 9 and 11 were rejected under 35 USC 103(a) as being unpatentable over EMMONS. That rejection is respectfully traversed.

Claims 9 and 11 depend from claim 1 and 10 respectively and further define the invention and are believed patentable over EMMONS at least for depending from an allowable independent claim.

Claims 6 and 19 were rejected under 35 USC 103(a) as being unpatentable over EMMONS in view of JURGEN 5,582,469. That rejection is respectfully traversed.

Claim 6 is amended along the lines of claim 1 and recites that the pilot valve is configured to open to trigger a pressurisation/depressurisation cycle of the chamber of the first container in response to the liquid level in the second container falling below a second predetermined level, which triggers the depressurization. As set forth above, valve 20 of EMMONS offered in the Official Action as a pilot valve, performs in reverse of the recited pilot valve and, in any event, does not trigger a pressurisation/depressurisation cycle as recited. JURGEN is only cited with respect to a non-return valve. JURGEN does not overcome the shortcomings of EMMONS noted above.

The above-noted features are missing from each of the references, are absent from the proposed combination of references and thus, the proposed combination of references does not meet the present claims.

Claim 19 is believed to be patentable at least for depending from allowable independent claim 1.

Claim 21 was rejected under 35 USC 103 (a) as being unpatentable over NEWHOUSE 1,628,608 in view of EMMONS. That rejection is respectfully traversed.

NEWHOUSE is only cited for a container capable of using steam as the motive fluid. NEWHOUSE does not overcome the shortcomings of EMMONS set forth above at least with respect to the recited pilot valve as recited in claim 1. Since claim 21 depends from claim 1 and further defines the invention, claim 21 is believed to be patentable at least for depending from an allowable independent claim.

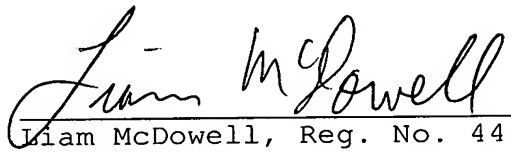
In view of the present amendment and the foregoing Remarks, it is believed that the present application has been placed in condition for allowance. Favorable reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any

overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



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